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**west virginia** department of environmental protection

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Office of Oil and Gas  
601 57th Street SE  
Charleston, WV 25304  
(304) 926-0450  
(304) 926-0452 fax

Earl Ray Tomblin, Governor  
Randy C. Huffman, Cabinet Secretary  
[www.dep.wv.gov](http://www.dep.wv.gov)

December 11, 2013

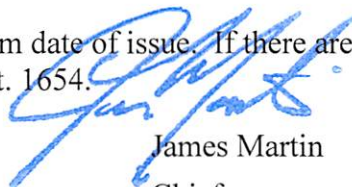
**WELL WORK PLUGGING PERMIT**

**Plugging**

This permit, API Well Number: 47-9500430, issued to GASTAR EXPLORATION USA, INC., is evidence of permission granted to perform the specified well work at the location described on the attached pages and located on the attached plat, subject to the provisions of Chapter 22 of the West Virginia Code of 1931, as amended, and all rules and regulations promulgated thereunder, and to all conditions and provisions outlined in the pages attached hereto. Notification shall be given by the operator to the Oil and Gas Inspector at least 24 hours prior to the construction of roads, locations, and/or pits for any permitted work. In addition, the well operator shall notify the same inspector 24 hours before any actual well work is commenced and prior to running and cementing casing. Spills or emergency discharges must be promptly reported by the operator to 1-800-642-3074 and to the Oil and Gas inspector.

Upon completion of the plugging well work, the above named operator will reclaim the site according to the provisions of WV Code 22-6-30. The above named operator will also file, as required in WV Code 22-6-23, an affidavit on form WR-38 by two experienced persons in the operator's employment and the Oil and Gas inspector that the work authorized under this permit was performed and a description given. Failure to abide by all statutory and regulatory provisions governing all duties and operations here under may result in suspensions or revocation of this permit and in addition may result in civil and/or criminal penalties being imposed upon the operator.

This permit will expire in two (2) years from date of issue. If there are any questions, please free to contact me at (304) 926-0499 ext. 1654.



James Martin  
Chief

Operator's Well No: M.W. SPENCER NO. 21  
Farm Name: SPENCER, ALVA D. ., ESTATE  
**API Well Number: 47-9500430**  
**Permit Type: Plugging**  
Date Issued: 12/11/2013

**Promoting a healthy environment.**

## PERMIT CONDITIONS

West Virginia Code § 22-6-11 allows the Office of Oil and Gas to place specific conditions upon this permit. Permit conditions have the same effect as law. Failure to adhere to the specified permit conditions may result in enforcement action.

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### CONDITIONS

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1. In the event of an accident or explosion causing loss of life or serious personal injury in or about the well or while working on the well, the well operator or its contractor shall give notice, stating the particulars of the accident or explosion, to the oil and gas inspector and the Chief within twenty-four (24) hours.
2. Well work activities shall not constitute a hazard to the safety of persons.

1) Date: September 18, 2013  
2) Operator's Well Number  
M.W. Spencer No.21  
3) API Well No: 47 - 095 - 0430  
State County Permit

## APPLICATION FOR A PERMIT TO PLUG AND ABANDON

4) WELL TYPE:	Oil	<u>X</u>	Gas	<u>X</u>	Liquid Injection	<u>                    </u>	Waste Disposal	<u>                    </u>
	(If "Gas", Production	<u>                    </u>	Underground Storage	<u>                    </u>	) Deep	<u>                    </u>	Shallow	<u>X</u>
5) LOCATION:	Elevation:	<u>1084'</u>	Watershed:	<u>Indian Creek</u>				
	District:	<u>McElroy</u>	County:	<u>Tyler</u>			Quadrangle	<u>Shirley 7.5'</u>
6) WELL OPERATOR:	Gastar Exploration, Ltd.	<u>494487685</u>	7) DESIGNATED AGENT	Mike McCown				
Address	<u>229 W. Main St., Suite 301</u>		Address	<u>229 W. Main St., Suite 301</u>				
	<u>Clarksburg, WV 26301</u>			<u>Clarksburg, WV 26301</u>				
8) OIL & GAS INSPECTOR TO BE NOTIFIED			9) PLUGGING CONTRACTOR					
Name	<u>Joe Taylor</u>		Name	<u>                    </u>				
Address	<u>497 Claylick Road</u>		Address	<u>                    </u>				
	<u>Ripley, WV 25271</u>			<u>                    </u>				

10) WORK ORDER: The work order for the manner of plugging this well is as follows:

<u>CASING</u>	
13"	333' CTS
7"	2,014'
<u>LINERS</u>	

TD-2,238'	Coal:	NA
Gel	2238	- 2120
Plug No. 1	2120	- 1960
Freepoint, Cut & Pull 7" Casing at 1,600' (Est.)		
Plug No. 2	1650	- 1550
Plug No. 3	1130	- 1030
Plug No. 4	380	- 280
Plug No. 5	100	- Surface

**NOTES:**

Free point, cut and pull all casing strings present. Place 100 ft. cement plug at bottom of any casing left in well.  
Fill Well Bore with 6% Gel Between all Cement Plugs  
Erect Monument with API No.

CEMENT PLUGS MUST BE A MINIMUM OF 100' CLASS A CEMENT WITH NO MORE THAN 3%  $\text{CaCl}_2$  AND NO OTHER ADDITIVES.

Received

NOV 6 2013

Inspector 24 hours before permitted work can commence.

Office of Oil and Gas  
WV Dept. of Environmental Protection

Work order approved by Inspector

Date 10-28-13

9-71



ENGINEERING DEPT.

JUN 16 1972

RECEIVED

JUN 13 1972

9500430P

STATE OF WEST VIRGINIA  
DEPARTMENT OF MINESOIL & GAS DIVISION  
DEPT. OF MINES

## Oil and Gas Division

## WELL RECORD

Quadrangle West UnionPermit No. Tyl-430
 Rotary ☒ Oil ☒  
 Cable ☒ Gas \_\_\_\_\_  
 Recycling ☒ Comb. \_\_\_\_\_  
 Water Flood \_\_\_\_\_ Storage \_\_\_\_\_  
 Disposal \_\_\_\_\_ (Kind)

 Company Quaker State Oil Refining Corporation  
 Address P.O. Box 1327, Parkersburg, W.Va.
Farm M. V. Spencer Heirs Acres 258Location (waters) Indian CreekWell No. 21 Elev. 1084District McElroy County Tyler

The surface of tract is owned in fee by \_\_\_\_\_

M. V. Spencer HeirsAddress Alma, W. Va.Mineral rights are owned by Quaker State

Address \_\_\_\_\_

Drilling Commenced 12-13-71Drilling Completed 2-3-72

Initial open flow \_\_\_\_\_ cu. ft. \_\_\_\_\_ bbls.

Final production \_\_\_\_\_ cu. ft. per day 5 bbls.Well open 24 hrs. before test 2 RP.

Well treatment details:

Shot 100 quarts Nitro2122 - 2160

Casing and Tubing	Used in Drilling	Left in Well	Cement fill up Cu. ft. (Sks.)
Size			
20-16			
Cond.			
13-10"	333	333	cmt. to surface
9 5/8			
8 5/8			
7	2014	2014	
5 1/2			
4 1/2			
3			
2			
Liners Used			

Attach copy of cementing record.

 Coal was encountered at None Feet \_\_\_\_\_ Inches \_\_\_\_\_  
 Fresh water None Feet \_\_\_\_\_ Salt Water None Feet \_\_\_\_\_  
 Producing Sand Big Injun Depth 2072

Formation	Color	Hard or Soft	Top Feet	Bottom Feet	Oil, Gas or Water	* Remarks
Shale			0'	170'		
Sand & Shale			170'	332'		
Shale			332'	498'		
Sand			498'	615'		
Shale			615'	746'		
Sand			746'	760'		
Shale			760'	808'		
Sand			808'	878'		
Shale			878'	1076'		
Sand			1076'	1100'		
Shale			1100'	1280'		
Sand			1280'	1302'		
Shale			1302'	1382'		
Sand			1382'	1472'		
Shale			1472'	1604'		
Sand (Broken)			1604'	1695'		
Shale			1695'	1742'		
Sand (Broken)			1742'	1805'		
Shale			1805'	1850'		
Sand (Broken)			1850'	1865'		
Shale			1865'	1950'		
Little, Lime			1950'	1964'		
Pencil Cave			1964'	1980'		

(over)

\* Indicates Electric Log tops in the remarks section.

Received

NOV 6 2013

Office of Oil and Gas  
WV Dept. of Environmental Protection

Formation	Color	Hard or Soft	Top Feet <b>3</b>	Bottom Feet	Oil, Gas or Water	• Remarks
Big Lime			1980'	2040'		
Keener			2040'	2072'		
Big Injun			2072'	2238'		
					Gas Pay	2088' - 2125'
					Oil Pay	2125' - 2152'

Date June 12, 1972APPROVED QUAKER STATE OIL REFINING CORP., OwnerBy Don Bush  
(Title) **Geologist**



CK 35127  
100003

95004308

- 1) Date: September 18, 2013  
2) Operator's Well Number M.W. Spencer No.21  
3) API Well No: 47 - 095 - 0430  
State County Permit

**STATE OF WEST VIRGINIA**  
**DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS**  
**NOTICE OF APPLICATION TO PLUG AND ABANDON A WELL**

- 4) Surface Owner(s) to be served:  
(a) Name Alva D. Spencer Estate  
Address C/O Marcia Mronzinski  
3471 Maradee Ct.  
(b) Name Farwell, MI 48622  
Address \_\_\_\_\_  
(c) Name \_\_\_\_\_  
Address \_\_\_\_\_
- 5) (a) Coal Operator:  
Name NA  
Address \_\_\_\_\_  
(b) Coal Owner(s) with Declaration  
Name NA  
Address \_\_\_\_\_  
Name \_\_\_\_\_  
Address \_\_\_\_\_  
(c) Coal Lessee with Declaration  
Name \_\_\_\_\_  
Address \_\_\_\_\_
- 6) Inspector Joe Taylor  
Address 497 Claylick Road  
Ripley, WV 25271  
Telephone 304-380-7469

**TO THE PERSON(S) NAMED ABOVE:** You should have received this Form and the following documents:

- 1) The Application to Plug and Abandon a Well on Form WW-4B, which sets out the parties involved in the work, and describes the well and its location and the plugging work order; and  
2) The plat (surveyor's map) showing the well location on Form WW-6

The reason you have received these documents is that you have rights regarding the application which are summarized in the instructions on the reverse side. However, you are not required to take any action at all.

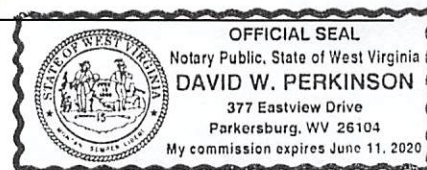
Take notice that under Chapter 22-6 of the West Virginia Code, the undersigned well operator proposes to file or has filed this Notice and Application and accompanying documents for a permit to plug and abandon a well with the Chief of the Office of Oil and Gas, West Virginia Department of Environmental Protection, with respect to the well at the location described on the attached Application and depicted on the attached Form WW-6. Copies of this Notice, the Application, and the plat have been mailed by registered or certified mail or delivered by hand to the person(s) named above (or by publication in certain circumstances) on or before the day of mailing or delivery to the Chief.

Well Operator Gastar Exploration Ltd.  
By: Mike McCown  
Its: COO & Designated Agent  
Address 229 W. Main St., Suite 301  
Clarksburg, WV 26301  
Telephone (304) 622-4796

Subscribed and sworn before me this 4th day of October, 2013

My Commission Expires June 11, 2020

Notary Public



**SURFACE OWNER WAIVER**Operator's Well  
NumberM.W. Spencer No.21  
47- 095- 0430**INSTRUCTIONS TO SURFACE OWNERS NAMED ON PAGE WW4-A**

The well operator named on page WW-4A is applying for a permit from the State to plug and abandon a well. (Note: If the surface tract is owned by more than three persons, then these materials were served on you because your name appeared on the Sheriff's tax ticket on the land or because you actually occupy the surface tract. In either case, you may be the only owner who will actually receive these materials.) See Chapter 22 of the West Virginia Code. Well work permits are valid for 24 months. If you do not own any interest in the surface tract, please forward these materials to the true owner immediately if you know who it is. Also, please notify the well operator and the Office of Oil and Gas.

**NOTE: YOU ARE NOT REQUIRED TO FILE ANY COMMENT.****WHERE TO FILE COMMENTS AND OBTAIN ADDITIONAL INFORMATION:**

Chief, Office of Oil and Gas  
Department of Environmental Protection  
601 57<sup>th</sup> St. SE  
Charleston, WV 25304  
(304) 926-0450

**Time Limits and methods for filing comments.** The law requires these materials to be served on or before the date the operator files his Application. You have **FIVE (5) DAYS** after the filing date to file your comments. Comments must be filed in person or received in the mail by the Chief's office by the time stated above. You may call the Chief's office to be sure of the date. Check with your postmaster to ensure adequate delivery time or to arrange special expedited handling. If you have been contacted by the well operator and you have signed a "voluntary statement of no objection" to the planned work described in these materials, then the permit may be issued at any time.

**Comments must be in writing.** Your comments must include your name, address and telephone number, the well operator's name and well number and the approximate location of the proposed well site including district and county from the application. You may add other documents, such as sketches, maps or photographs to support your comments.

The Chief has the power to deny or condition a well work permit based on comments on the following grounds:

- 1) The proposed well work will constitute a hazard to the safety of persons.
- 2) The soil erosion and sediment control plan is not adequate or effective;
- 3) Damage would occur to publicly owned lands or resources;
- 4) The proposed well work fails to protect fresh water sources or supplies;
- 5) The applicant has committed a substantial violation of a previous permit or a substantial violation of one or more of the rules promulgated under Chapter 22, and has failed to abate or seek review of the violation..."

If you want a copy of the permit as it is issued or a copy of the order denying the permit, you should request a copy from the Chief.

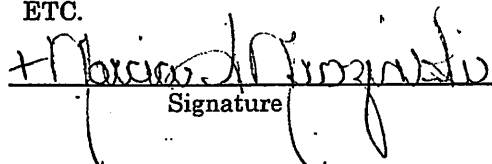
**VOLUNTARY STATEMENT OF NO OBJECTION**

I hereby state that I have read the instructions to surface owners and that I have received copies of a Notice and Application For A Permit To Plug And Abandon on Forms WW-4A and WW-4B, and a survey plat.

I further state that I have no objection to the planned work described in these materials, and I have no objection to a permit being issued on those materials.

FOR EXECUTION BY A NATURAL PERSON  
ETC.

FOR EXECUTION BY A CORPORATION,

 Date 8.5.2013 Name \_\_\_\_\_  
Signature By \_\_\_\_\_  
Its \_\_\_\_\_

Signature

Date


STATE OF WEST VIRGINIA  
DEPARTMENT OF ENVIRONMENTAL PROTECTION  
OFFICE OF OIL AND GAS

CONSTRUCTION AND RECLAMATION PLAN AND SITE REGISTRATION APPLICATION FORM  
GENERAL PERMIT FOR OIL AND GAS PIT WASTE DISCHARGE

Operator	Gastar Exploration, Ltd.		OP Code	494487685
Watershed	Indian Creek		Quadrangle	Shirley 7.5'
Elevation	1084'	County	Tyler	District
Description of anticipated Pit Waste:		Fluids encountered in plugging subject well		
Do you anticipate more than 5,000 bbls of water to complete the proposed well work?			Yes	No
Will a synthetic liner be used in pit?			Yes	If so, what mil.?
Proposed Disposal Method For Treated Pit Wastes:				
X Land Application				
Underground Injection (UIC Permit Number				
Reuse (at API Number				
Off Site Disposal (Supply Form WW-9 for disposal location)				
Other (Explain				
Drilling medium anticipated for this well? Air, fresh water, oil based, etc. NA				
- If oilbased, what type? Synthetic, petroleum, etc.				
Additives to be used?				
Drill cuttings disposal method? Leave in pit, landfill, removed offsite, etc. NA				
- If left in pit and plan to solidify, what medium will be used? Cement, lime, sawdust NA				
- Landfill or offsite name/permit number?				

I certify that I understand and agree to the terms and conditions of the GENERAL WATER POLLUTION PERMIT issued on August 1, 2005, by the Office of Oil and Gas of the West Virginia Department of Environmental Protection. I understand that the provisions of the permit are enforceable by law. Violations of any term or condition of the general permit and/or other applicable law or regulation can lead to enforcement action.

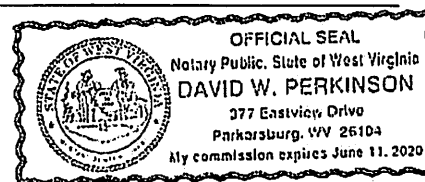
I certify under penalty of law that I have personally examined and am familiar with the information submitted on this application form and all attachments thereto and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine or imprisonment.

Company Official Signature		
Company Official (Typed Name)	Mike McCown	NOV 6 2013
Company Official Title	COO & Designated Agent	

Office of Oil and Gas  
Environmental Protection

Subscribed and sworn before me this 4th day of October, 2013

My commission expires June 11, 2020





Legend

Property Boundary		Diversion	
Road		Spring	
Existing Fence		Wet Spot	
Planned Fence		Drain Pipe	
Stream		Waterway	
Open Ditch		Cross Drain	
Rock		Filter Strip	
North		Pit: Cut Walls	
Buildings		Pit: Compacted Fill Walls	
Water Wells		Area of Land Application of Pit Waste	
Drill Site			

Proposed Revegetation Treatment: Acres Disturbed Area I Approx. 0.2 Ac. Prevegetation pH \_\_\_\_\_

Area II  
Approx. 0.1 Ac.

Lime 2 Tons/Acre or Correct to pH 6.5  
Fertilizer (10-20-20 or Equivalent) 500 Lbs./Acre (500 lbs. Minimum)  
Mulch Straw 2 Tons/Acre

SEED MIXTURES

<u>Area I (Location)</u>	
Seed Type	Lbs./Ac.
Tall Fescue	40
Ladino Clover	5

<u>Area II (Road)</u>	
Seed Type	Lbs./Ac.
Tall Fescue	40
Ladino Clover	5

Attach:

Drawing(s) of road, location, pit and proposed area for land application  
Photocopied section of involved 7.5' topographic sheet.

Plan Approved by:

Comments: \_\_\_\_\_

Title: Inspector

Field Reviewed? X Yes

No

Date: 10-28-13

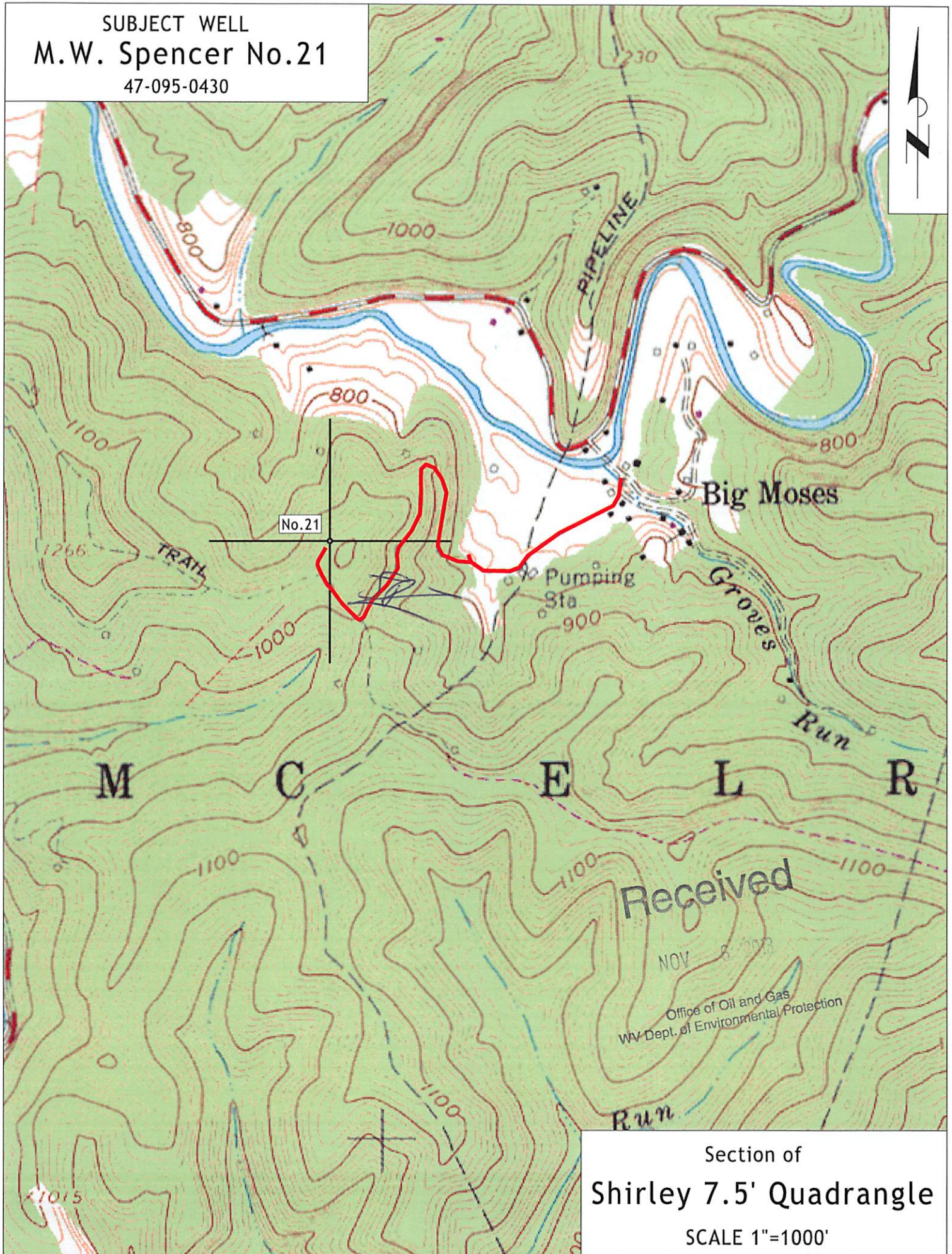
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Office of Oil and Gas  
WV Dept. of Environmental Protection



SUBJECT WELL  
M.W. Spencer No.21  
47-095-0430



Section of  
Shirley 7.5' Quadrangle

SCALE 1"=1000'



West Virginia Department of Environmental Protection  
Office of Oil & Gas**WELL LOCATION FORM: GPS**

API: 47- 095 - 0430 WELL NO: No.21

FARM NAME: M.W. Spencer

RESPONSIBLE PARTY NAME: Gastar Exploration, Ltd.

COUNTY: Tyler DISTRICT: McElroy

QUADRANGLE: Shirley 7.5'

SURFACE OWNER: Alva D. Spencer Estate

ROYALTY OWNER: Alva D. Spencer Estate

UTM GPS NORTHING: 4,364,545 (NAD 83)

UTM GPS EASTING: 517,819 (NAD 83) GPS ELEVATION: 330 m. (1084 ft)

The Responsible Party named above has chosen to submit GPS coordinates in lieu of preparing a new well location plat for a plugging permit on the above well. The Office of Oil & Gas will not accept GPS coordinates that do not meet the following requirements:

1. Datum: NAD 1983, Zone: 17 North, Coordinate Units: meters, Altitude: height above mean sea level (MSL) - meters.
2. Accuracy to Datum - 3.05 meters
3. Data Collection Method:

Survey Grade GPS ☐ Post Processed Differential ☐  
Real-Time Differential ☐

Mapping Grade GPS ☒ Post Processed Differential ☒  
Real-Time Differential ☐

**Received**

NOV 6 2013

I the undersigned, hereby certify this data is correct to the best of my knowledge and belief and shows all the information required by law and the regulations issued and prescribed by the Office of Oil and Gas.

Mike McCown  
Signature

COO & Designated Agent  
Title

September 18, 2013  
Date